



# **Air Quality Permitting Statement of Basis**

**June 15, 2007**

**Permit to Construct No. P-2007.0056**

**Potlatch Forest Products Corporation, Lewiston**

**Facility ID No. 069-00001**

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## Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
hp	horsepower
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O <sub>3</sub>	ozone
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per year
µg/m <sup>3</sup>	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

## 1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

This PTC will replace PTC No. 069-00001 issued September 16, 1996 the terms and conditions of which shall no longer apply.

## 2. FACILITY DESCRIPTION

Potlatch Pulp and Paperboard Division (Potlatch) operates a kraft pulp mill in Lewiston, Idaho. The mill produces bleached kraft pulp, which is processed in three different areas. Uncoated and coated paperboard is produced in the paper machine area; market pulp is dried on the pulp dryer in the finishing area; and slurried pulp stock is pumped to the Potlatch Consumer Products Division, which is adjacent to the Idaho Pulp and Paper Division.

In the paper making process lignin is partially removed from the brownstock (pulp) by the oxygen delignification system. This statement of basis, and associated permit action, is limited to oxygen delignification system of the paper making process.

## 3. FACILITY / AREA CLASSIFICATION

Potlatch is classified as a major facility because the facility's potential to emit greater than 100 tons per year of a regulated air pollutant. The AIRS classification is A.

The facility is located within AQCR 062 and UTM zone 11. The facility is located in Nez Perce County which is designated as unclassifiable/attainment for all regulated criteria pollutants (PM<sub>10</sub>, CO, NO<sub>x</sub>, SO<sub>2</sub>, lead, and ozone).

The previous AIRS information for this facility is not changed by this permit action therefore the AIRS information is not repeated as part of this statement of basis.

## 4. APPLICATION SCOPE

Potlatch requested to remove carbon monoxide emission rate limits and continuous emission monitoring requirements from the oxygen delignification permit.

### 4.1 *Application Chronology*

April 11, 2007	DEQ received a Permit to Construct Application from Potlatch
April 27, 2007	DEQ received an email from Potlatch with additional emissions data
May 9, 2007	DEQ determine the application complete

## 5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

## 5.1 Equipment Listing

This statement of basis only entails the Oxygen Delignification system which is a custom manufactured processing unit.

## 5.2 Emissions Inventory

Potlatch submitted carbon monoxide emission rates from the Oxygen Delignification system that were derived from continuous emissions monitoring data for the years 2003 through 2006. Table 5.1 summarizes these emissions rates. The emissions data submitted by the applicant is included in Appendix A.

**Table 2.1 Oxygen Delignification  
Carbon Monoxide Emissions Rates**

Year	CO Emission Rates (T/yr)
2003	31.6
2004	38.6
2005	36.8
2006	41.4

Potlatch described the Oxygen Delignification system's potential to emit carbon monoxide by performing a statistical analysis on historical emissions data. However, potential to emit is by definition (IDAPA 58.01.01.006.71) the maximum capacity of an facility to emit under it's physical and operation design, and is not based on, or derived from, historical emission rates. Therefore, the statistical analysis that Potlatch provided did not give the facilities potential to emit because the maximum capacity to emit under it's physical and operation design was not provided. Also, the statistical analysis did not account for the upward trend in emission rates from 2003 to 2006 (a 31% increase of emissions).

## 5.3 Modeling

In accordance with DEQ Modeling Guideline, modeling is required if the increase in permitted emissions exceeds modeling thresholds. The modeling threshold for carbon monoxide is 14 pounds per hour. In order for modeling to be required for this permit action, which includes a request to remove the pound per hour carbon monoxide emission limit, the pound per hour emissions would have to increase by 14 pounds per hour over the current permitted value of 17 pounds per hour (or increase to 31 pounds per hour). Potlatch has operated the continuous emission monitor for over 10 years and reported the results to DEQ. During that time emissions were not reported to exceed 31 pounds per hour, and during the last 5 years the highest reported emissions were 17.1 pounds per hour<sup>1</sup>. Therefore, modeling is not required in order to remove the pound per hour carbon monoxide emission limit.

## 5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

The facility's proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203.....Permit Requirements for New and Modified Stationary Sources

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<sup>1</sup> Per discussions with Clayton Steel, Air Quality Specialist, DEQ Lewiston Regional Office (5/22/07)  
PTC Statement of Basis

The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210.....Demonstration of Preconstruction Compliance with Toxic Standards

Emissions of toxic air pollutants will not increase and as a result of the permit changes, therefore preconstruction compliance requirements are not triggered for toxic air pollutants.

IDAPA 58.01.01.224.....Permit to Construct Application Fee

The applicant satisfied the PTC application fee requirement by submitting a fee of \$1,000.00 on April 13, 2007.

IDAPA 58.01.01.225.....Permit to Construct Processing Fee

There is not an emission increase from the permit modification (emission increase is less than 1 T/yr) and an engineering analysis was required; therefore, the associated processing fee is \$1,000.00. DEQ received the \$1,000.00 processing fee on June 13, 2007.

IDAPA 58.01.01.300.....Procedure and Requirements for Tier I Operating Permits

The permit to construct modification will contravene the existing Tier I operating permit conditions. Therefore, Potlatch has requested to have the Tier I operating permit administratively amended in accordance with IDAPA 58.01.01.209.05.c to include the changes to the Oxygen Delignification System permit conditions after the permit to construct is issued.

## **5.5 Permit Conditions Review**

All existing permit conditions for the Oxygen Delignification system are obsolete, modified or deleted. The following discussion describes all changes to the permit.

The existing permit (condition 3.2) required a source test within 180 days of startup of the facility. This condition is obsolete and is removed since the facility began operation over 10 years ago.

All the remaining existing permit conditions are either carbon monoxide emission limits or conditions requiring operating and maintaining a continuous emission monitor. Potlatch requested that the emission rate limits be removed from the permit as well as the requirements for the continuous emission monitor because they stated that the potential to emit is less than the permitted emission rate. In describing the potential to emit Potlatch submitted carbon monoxide emission data for years 2003 through 2006. This data shows that the actual carbon monoxide emissions are less than 61% of the 74.5 T/yr emission limit. As discussed in the Emission Inventory Section of this Statement of Basis, Potlatch did not demonstrate that the potential to emit under the facility's operational design capacity is less than the 74.5 T/yr emissions limit. The information provided simply showed that actual emissions during the years between 2003 and 2006 are less than the allowable emission limit. Therefore, the 74.5 T/yr emissions limit remains in the permit. The emissions data did demonstrate that actual emissions are sufficiently below annual emission limits that a continuous emission rate monitor is not warranted. The permit now requires a carbon monoxide emissions test once every five years instead of requiring continuous emissions monitoring.

The 17 pound per hour carbon monoxide emission limit has been removed from the permit. The annual emission rate limit remains to avoid triggering PSD. The pound per hour emission rate limit is not needed to protect the carbon monoxide ambient standard as discussed in the Modeling section of this Statement of Basis (Section 5.3).

Following is a discussion on the new permit conditions:

### **Permit Condition 2.3**

Carbon monoxide emissions are limited to not exceed 74.5 tons per any consecutive 12-months. This emission limit is the same emission limit that the current permit has.

### **Permit Condition 2.5**

Once each five years the permittee shall conduct a carbon monoxide performance test. During the test the oxygen rate to the system, lignin content of the pulp and the pulp throughput rate are required to be monitored because these variables are expected to correlate to emissions. An emission factor shall be developed in pounds of carbon monoxide emitted per ton of air dried pulp processed. Worst case emissions are expected to occur when the lignin removal from the pulp is high through the reactor, when the pulp throughput rate is high and when the oxygen addition rate is high. Worst case normal emissions would be presumed to be emissions that result from representative high: lignin removal rates, pulp throughput rates, and oxygen addition rates.

An emission test is required to assure ongoing compliance with the 74.5 ton per consecutive 12-month emission limit because: emission data submitted by Potlatch shows that emissions increased by 31% from 2003 to 2006; and because the maximum capacity of the oxygen delignification system to emit carbon monoxide is not known. If the emissions increase trend continues over the next 8 to 10 years emissions may exceed the allowable emission rate limit. Periodic emissions testing will assure compliance.

### **Permit Condition 2.6 & 2.7**

Permit Condition 2.6 requires monthly and consecutive 12-month monitoring of throughput to the oxygen delignification system and Permit Condition 2.7 requires calculating the carbon monoxide emissions using the throughput data monitored by Permit Condition 2.6. The emissions calculations are not required until the source test is completed that is required by Permit Condition 2.5 which may be five years from the issuance of this permit.

## **5.6 Permit to Construct Processing Fee**

There is not an emission increase from the permit modification (emission increase is less than 1 T/yr); and an engineering analysis was required; therefore, in accordance with IDAPA 58.01.01.225 the associated processing fee is \$1,000.00. DEQ received the \$1,000.00 processing fee on June 13, 2007.

**Table 6.1 PTC PROCESSING FEE TABLE**

<b>Emissions Inventory</b>			
<b>Pollutant</b>	<b>Annual Emissions Increase (T/yr)</b>	<b>Annual Emissions Reduction (T/yr)</b>	<b>Annual Emissions Change (T/yr)</b>
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	0.0	0	0.0
CO	0.0	0	0.0
PM <sub>10</sub>	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	<b>0.0</b>
Fee Due	<b>\$ 1,000.00</b>		

## **6. PERMIT REVIEW**

### **6.1 *Regional Review of Draft Permit***

A draft permit was provided to the Lewiston Regional Office for review on May 23, 2007. Comments received were incorporated into the statement of basis.

### **6.2 *Facility Review of Draft Permit***

On May 31, 2007 Potlatch was provided a draft of the permit and statement of basis for their review. Potlatch paid the \$1,000.00 permit to construct processing fee on June 13, 2007, no comments were received on the draft permit.

### **6.3 *Public Comment***

In accordance with IDAPA 58.01.01.209.05.c, the Department will provide for public comment and affected states review in accordance with Sections 209, 364, and 365 on the draft permit to construct.

## **7. RECOMMENDATION**

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Potlatch Forest Products Corporation be issued a draft permit to construct and that the draft permit be made available for EPA and affected states review, and public comment.

DP/dp                      Permit No. P-2007.0056



## **Appendix A**

### **Emissions Inventory & Statistical Analysis Provided By Potlatch**

**P-2007.0056**

O2 delig system CO emissions, rolling 12 month average.

tons per 74.5 year limit	monthly lbs	12 month rolling tons	% of limit
	Jan-02	5346	
	Feb-02	4238	
	Mar-02	6323	
	Apr-02	5508	
	May-02	3939	
	Jun-02	5627	
	Jul-02	6652	
	Aug-02	5472	
	Sep-02	4577	
	Oct-02	5932	
	Nov-02	4744	
	Dec-02	5309	32 43%
	Jan-03	5230	32 43%
	Feb-03	4108	32 43%
	Mar-03	5265	31 42%
	Apr-03	4366	31 41%
	May-03	3702	30 41%
	Jun-03	4619	30 40%
	Jul-03	5404	29 39%
	Aug-03	7326	30 41%
	Sep-03	7401	32 43%
	Oct-03	8705	33 44%
	Nov-03	6888	34 46%
	Dec-03	7290	35 47%
	Jan-04	7249	36 49%
	Feb-04	6565	37 50%
	Mar-04	5416	37 50%
	Apr-04	6743	39 52%
	May-04	5402	40 53%
	Jun-04	3616	39 52%
	Jul-04	6195	39 53%
	Aug-04	7466	39 53%
	Sep-04	7781	40 53%
	Oct-04	8068	39 53%
	Nov-04	6784	39 53%
	Dec-04	7135	39 53%
	Jan-05	6922	39 52%
	Feb-05	5168	38 51%
	Mar-05	3523	37 50%
	Apr-05	5196	37 49%
	May-05	4992	36 49%
	Jun-05	5781	38 50%
	Jul-05	4864	37 49%
	Aug-05	6334	36 49%
	Sep-05	6599	36 48%
	Oct-05	7420	35 47%
	Nov-05	8346	36 49%
	Dec-05	7170	36 49%
	Jan-06	7899	37 49%
	Feb-06	6736	37 50%
	Mar-06	7919	40 53%
	Apr-06	5810	40 54%
	May-06	5057	40 54%
	Jun-06	7228	41 55%
	Jul-06	6892	42 56%
	Aug-06	8645	43 58%
	Sep-06	9159	44 59%
	Oct-06	9393	45 61%
	Nov-06	6835	44 60%
	Dec-06	6638	44 59%

O2 delig potential to emit for CO  
4/27/07

Base data is daily production and emission data from July 2005 through May 2006

Used days when production was “normal” (over 1000 tons per day, 239 days)

Average CO emission factor is 0.20 lbs per ton  
Standard deviation is 0.05 lb/ton

An emission factor with a 95% confidence level =  
average + 2 standard deviations = 0.30 lb/ton.

Average production rate is 48.4 tons pulp per hour  
Standard deviation is 3.9 tons pulp per hour

A production rate with a 95% confidence level =  
average + 2 standard deviations = 56.2 tons pulp per hour

Hourly PTE =  
 $56.2 \text{ tons pulp per hour} \times 0.30 \text{ lb. CO per ton} = 16.8 \text{ lb per hour}$

Annual PTE =  
 $56.2 \text{ tons pulp per hour} \times 8760 \text{ hours per year} \times 0.30 \text{ lb. CO per ton} / 2000 \text{ lb/ton} = 73.8 \text{ tons CO/year.}$   
(this is a conservative production estimate – approximately 30% greater than actual 2006 production).